present invention will become apparent from the following description of preferred embodiments given in conjunction with the accompanying drawings, in which:

Fig. 1 shows a block diagram for an electronic mail (e-mail) system in accordance with a preferred embodiment of the present invention;

Fig. 2 illustrates a flow chart for describing a model building procedure conducted by a learning agent 220 shown in Fig. 1;

Fig. 3 represents an exemplary decision tree generated by a tree generating algorithm; and

Fig. 4 shows a flow chart for processing a newly received e-mail by a classifying agent 260 shown in Fig. 1.

Detailed Description of the Preferred Embodiments

Referring now to Fig. 1, there is illustrated a block diagram of an electronic mail (e-mail) processing system in accordance with a preferred embodiment of the present invention. The e-mail processing system includes a mail server 100, a mail storage 120, a TWIMC (To Whom It May Concern) system 200, recipients, i.e., users, 300 to 320 and data network 400. The mail storage 120 and the TWIMC system 200 can be incorporated in the mail server 100. The data network 400 may be, e.g., the Internet or a groupware system.

The mail server 100 processes e-mails transmitted from

a sender or received by a recipient through the data network 400, which is incorporated into a groupware system aiming for supporting a group work done by a plurality of users or a general e-mail system using the internet. The received or the transmitted e-mails are temporarily stored at the mail storage 120.

The TWIMC 200 has a learning agent 220, a model database 240 and a classifying agent 260. The TWIMC 200 forwards an e-mail to a best-qualified recipient based on a result of a content analysis thereof. The content analysis of the e-mail is done by the classifying agent 260. Details of forwarding function of the e-mail to the best qualified recipient will be described hereinafter.

The learning agent 220 in the TWIMC system 200 reads the e-mail from the mail storage 120 and executes a machine learning algorithm well known in the artificial intelligent field, e.g., ID3 or C4.5, to thereby generate models on recipients and then store them in the model database 220.

Referring to Fig. 2, there is illustrated a flow chart for describing a model building procedure by the learning agent 220 shown in Fig. 1. The learning agent 220 classifies e-mails stored in the mail storage 120 by recipients, i.e., mail accounts, at step 510. And then, the learning agent 220 performs an indexing work that extracts words from the respective e-mails classified by the mail accounts, at step 520. Next, the learning agent 220 builds

learning models on the recipients by using a well-known machine learning algorithm, e.g., ID3 or C4.5., at step 530. In case of using the machine learning algorithm ID3, decision trees are used as learning models. The built learning models are registered in the model database 240 at step 540.

As an example, it is assumed that four mails Mail 1 to Mail 4 are stored in the mail storage 120. The learning agent 220 classifies the e-mails by the recipients, e.g., Tom or the like, and then extracts words from the respective mails classified above. Next, the learning agent 220 performs the indexing work by using the extracted words. The result of the indexing work is as follows:

Table 1

Mail	Recipient	Build-ing	Bill collecting	customer	Bank	account	...
Mail 1	Tom	1	1	0	1	1	.
Mail 2	Tom	1	1	0	1	0	.
Mail 3	Other	1	0	1	0	1	.
Mail 4	Other	1	1	1	1	1	.

As shown in table 1, the recipient of the Mail 1 and Mail 2 is registered as Tom and the contents of them are related to a bill collecting in the bank. The recipients of the other mails are not Tom but others. Words extracted